

[Mutat. Res., 302, 129-133 (1993)]

[Lab. of Radioisotope]

***N*-Benzylimidazole, a potent inducer of rat liver enzymes involved in mutagenic activation of various carcinogens.**

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The mutagenic activities of five *N*-nitrosamines on *S.typhimurium* TA100 and two arylamines on TA98 were induced up to 5 times above controls and much higher inductions on strain TA98 were observed with aflatoxin B₁, two polycyclic hydrocarbons, two aminoazo compounds and six amino acid pyrolysates, which are all known to be metabolically activated by cytochrome P-450 (CYP) I and/or II species, indicating that *N*-benzylimidazole (BI) and polychlorobiphenyls (PCB) show a similar pattern of induction of CYP-dependent properties. In conclusion, these results demonstrate the use of BI for metabolic induction to be an effective alternative for induction with either PCB or a combination of phenobarbital and β -naphthoflavone.

[J. Biol. Chem., 268, 2577-2582 (1993)]

[Lab. of Biology]

Tumor Necrosis Factor Stimulates the Synthesis and Secretion of Biologically Active Nerve Growth Factor in Non-neuronal Cells.

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Tumor necrosis factor- α (TNF- α) markedly stimulates the synthesis and secretion of immunoreactive nerve growth factor (NGF) in quiescent mouse fibroblasts, which is a result of increase in the NGF mRNA level. TNF stimulates the synthesis and secretion of NGF also in other cells such as human glioblastoma cells. The stimulation of NGF production in the cells seems to be a specific activity of TNF. These findings suggest that TNF plays a role in regulating neuronal cell function through an indirect mechanism by which it stimulates NGF production in glial cells and fibroblasts.

[Spectrochim. Acta, 49A, 125-133 (1993)]

[Lab. of Instrumental Center]

Solid state structures of phenylpyruvates as studied by high resolution ¹³C NMR spectroscopy.

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High resolution solid state ¹³C NMR measurements have been made on phenylpyruvic acid and its sodium, lithium and calcium salts. The spectra of their 2-¹³C enriched analogs have also been recorded. The NMR data provide the following definitive evidence: the acid, the hydrated sodium and lithium salts and the dehydrated sodium salt take the enol, the diol and the keto form, respectively, but the hydrated calcium salt exists in the keto form. The ¹³C NMR signal of the *gem*-diol carbon appears at 98 ppm. The calcium salt has two doublets at 166 and 134 ppm which originate from the carbons C(1) and C(4); this splitting suggests that the carboxylate group and/or the phenyl ring in the phenylpyruvate anion are oriented in two different ways.